Field Change Order

FCO 70400042
Optimus RAD release upgrade to 3.8
USA only

BuckyDiagnost & Cosmos

DOCUMENT HISTORY:

Revision	Revision date	Reason of changes	
AA	Jan. 2011	First issue	4512 980 65771 REV AA
AB	April 2011	Revised document	4512 980 65772 REV AA

APPLIES TO:

Geography:	USA only
Traceable item identification (12NC):	9890 000 02001
Range of serial numbers:	SN Optimus generator: ≥ 970218 and ≤ SN061263 (delivered: from May 1997 - January 2007)
Physical sub, main block(s) and system code(s) identification where the affected item could be present:	70410/11/12/14/15, 704030/35, 704020/21/22, 704031/32, 704060/62, 704016/17/18 Main block: PB000135 Sub block: PB010005, PB010032, PB010033
Any other type of system identification number used by the BG/BU:	Optimus generator with FW version ≤ 3.6 (delivered: from May 1997 - January 2007) Control panel 9890 000 02403/-04/-05/-06/-07/-08 (delivered with SN: ≥ 9701016 and ≤ SN070056)

REMOTE SOFTWARE INSTALLATION:

Is this a software “ONLY” FCO: Yes
Can the software be installed on the equipment remotely: No

Procedure: Update of the SW with latest release

OPPORTUNITIES FOR FCO IMPLEMENTATION EFFICIENCY:

N/A

SUPERSEDES INFORMATION:

N/A

INTRODUCTION:

Symptom : Exposure parameters like kV, mA, mAs or ms seem to change without a button having been touched.

List FPR(s) solved (if applicable)
PR # 333162; 342432; 366270

Cause : If one pushes continuously (longer than a second) the + or – button to change any of the exposure parameters, the generator SW switches into an auto stepping mode, so that the data continues to change (up or down).
This function is specified to stop whenever you release the button.

If you are in the auto stepping mode (or within less than 200ms after release of this function) AND also the preparation switch is pressed, the auto stepping mode does NOT stop.
This might lead to unwanted parameter settings.

Remedy : Upgrade of the generator SW to latest version release 3.8

MANPOWER / TIME TO COMPLETE:

1 service engineer / 1.0 hour

APPLICATION TRAINING REQUIREMENTS:

No

COMPLIANCE TESTING:

No

TOOLS & TEST EQUIPMENT:

Tools	Tool code / 12NC
Standard tool kit	TC129
Service engineer PC, IST and AGenT latest version	TC 092

MODIFICATION KIT / PARTS REQUIRED:

Modification kit and/or parts 12NCs	Description
N/A	N/A

New firmware included in: AGenT 5.3.1, use Zeppelin tool CD or download from InCenter.
Link to Zeppelin ToolBox"

FCO KIT CONTENTS:

Non-traceable items

Item 12NC	Description
N/A	N/A

Non-serialized trace items

System code	FCO document	Outbound item	Inbound item	Parent material number	Software release description (N/A when HW)	Software patch level (N/A when HW)
Trace items (OIs) that must be installed/exchanged/removed (MP1 OI-table)						
N/A	N/A	N/A	N/A	N/A	N/A	N/A

Ordering information: Order the indicated material/kit according to the standard local service logistic procedures.

INSTALLED BASE REGISTRATION:

This FCO has impact on the installed base registration.
Make sure your local installed base registration is or gets updated with the 12NC numbers (and/or serial numbers) as stated in the **trace item tables** under "FCO Kit contents".

PROCEDURE:

1 PREPARATIONS

1.1 Off-site preparations

- Check the system status.
  - System compatibility
  - Other applicable FCOs
- Arrange the visit.
- Arrange the required tools and required firmware.

1.2 Back-up

NOTICE

Use proper ESD grounding techniques when handling components
Wear an antistatic wrist strap and use an ESD-protected mat.
Store ESD-sensitive components in antistatic bags before placing them on any surface.

1.3 Preparing the generator

1.3.1 Preparing generators without a CAN interface

The loading process can be started once relay ENK1 has been energized. Proceed to 1.3.3.

1.3.2 Preparing generators which are connected via a CAN interface

BuckyDiagnost TH and TH2

- Switch OFF the generator.
- Disconnect the following plugs:

System	Connector		
	EZX23 signal bus	EZX42 or EZX42−1 system CAN	EZX43 or EZX43−1 system CAN
BuckyDiagnost TH / TH2	X		X

Important

The download procedure must not be started before relay ENK1 has been energized at least two minutes after the generator has been switched ON.

1.3.3 Establishing the PC-generator connection

- If IST is not already started on the PC, start it now.
- Switch the generator ON.
  The download process can be started once relay ENK1 has been energized.
- Establish connection between PC and generator with the data cable.
- Start AGenT by clicking on the respective icon.

Tip

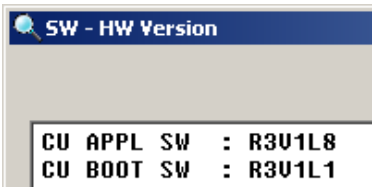
CU backup is the battery buffered configuration excluding tube adaptation data.
Firmware release 3.x is loaded and memorized in flash PROMs.
Loading the flash firmware does not influence the CU backup configuration.

1.3.4 Saving CMOS (CU backup), APR and tube load statistics

Tip

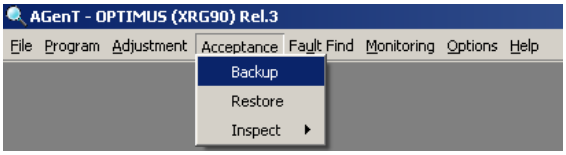
The backup is a safety backup which shall replace older ones which might already be obsolete from the configuration and in case it might be needed for a CU fault.
A new backup after the upgrade procedure is not necessary and it is not necessary to restore it after the firmware has been updated.

- Check the actual level of release 3.
- Select menu:
  AGenT / Fault Find / Power ON Results / SW/HW Versions.



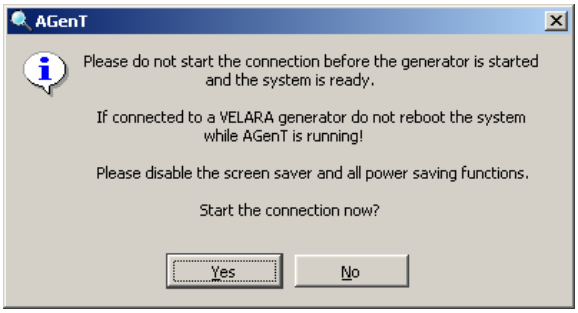
R3V1L8 = Release 3 Version 1 **Level 8**

- Select menu:
  Agent / Acceptance / Backup.



- Download the actual CMOS (filename e.g. CU97xxxx. TDL = serial number of generator)
  It takes about 15...20 minutes to save the data to the disk.
  The default backup name: **CUBACKUP.TDL** can be changed into any other file name.
  The path (hard disk) is automatically taken into account.
- At the end of the downloading process wait until the following message appears.

- Reset the generator.



- Click Yes to restart the connection if the actual release is 3.5 or 3.6 and proceed with **2. FCO Implementation**.

- Click No if the actual release is < 3.5.

The maximum value for density correction has been limited from Optimus RAD/RF release 3.5 onwards.

At Bucky auxiliaries the sum of all density corrections is

max. +/-- 2 steps of 25% (+/-- 4 formerly)
or
+/-- 4 steps of 12% (+/-- 8 formerly)
or
+/-- 8 steps of 6% (+/-- 16 formerly).

This is valid for all auxiliary settings, individual APR settings and patient size corrections.

This requires that the APR is downloaded on generators with release version <3.5 to have the data available for maintenance in case there are higher correction values programmed than possible after the upgrade.

Higher correction values are automatically limited after the flash load process.

- Use program APRMAN rel. 2.1 from the Zeppelin platform to download APR.

- Carry out the required modifications for the + density corrections > 2x25%. Increase the background organ mAs and select a slower film speed. The file can later be reloaded to the generator after the flash upgrade to release 3.8.

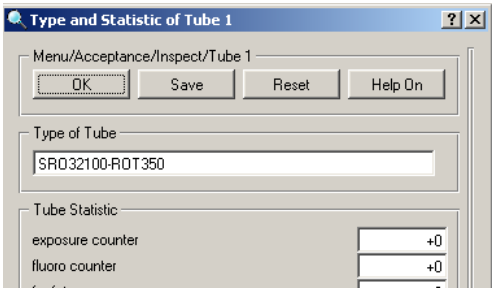
- Stop the APRMAN program.

From release 3.5 onwards the tube load counter has more detailed information. The content of the counter of the predecessor releases gets lost with the 3.8 update.

- Start AGenT.

- Select menu:
  AGenT / Acceptance / Inspect / Tube 1 (2, 3).

- Record the entries in the system logbook.

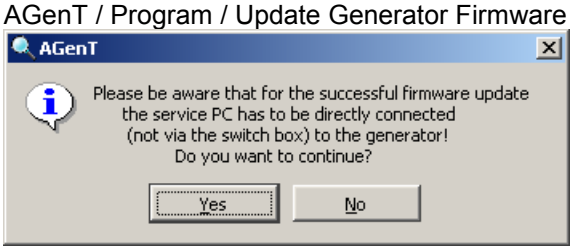


- Keep AGenT connected for the next step.

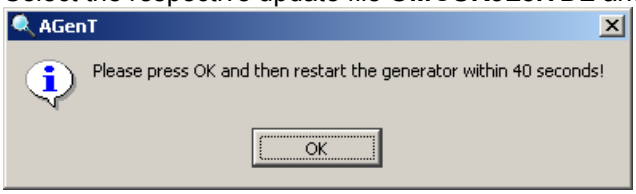
2 FCO IMPLEMENTATION

2.1 LOADING THE GENERATOR CU FIRMWARE RELEASE 3.8

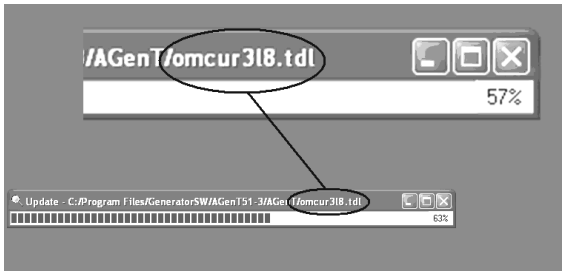
- Select menu:
  AGenT / Program / Update Generator Firmware (XRG 90 RAD/RF,C)



- Select the respective update file **OMCUR3L8.TDL** and click on ”Open” with the left mouse button.



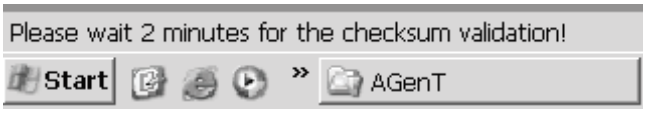
The reset can be performed within the next forty seconds, either with PCB EZ 139 S1 or with the ON button of the control module.
During the update process a progress bar is displayed on the screen which indicates how much of the update is completed.



Depending on the type of PC; data transmission takes 15 ... 30 minutes, in some cases about an hour.
During this process all red LEDs of the function units are blinking, the CU LED is permanently on.

Tip

When the data transmission to the generator is completed, the message to wait for two minutes appears on the screen.



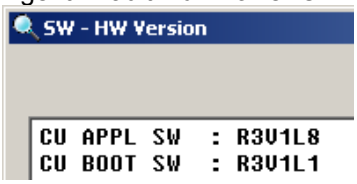
Important

This process must under no circumstances be disturbed!
At the end of this sensible procedure “Flash loaded ok” appears on the screen.

Only now the AGenT program can be terminated Text.

Typically the function units stop blinking, CU blinks. Once CU stops blinking as well the generator should come up normally.

- Select menu:
  Agent / Faultfind / Power ON Results / SW/HW Versions



  to confirm that release 3.8 has successfully been loaded.

2.2 FINAL WORK AND REMARKS ON THE CHANGES

Generators which are connected via a CAN interface:

- Switch OFF the generator.
- Reestablish the signal bus connector EZX23 and the CAN connector EZX43/43-1.

There are no changes which can be recognized at first sight.

In the error log index (path: *AGenT / Fault Find / Error log*) there is a 00XQ entry if the original firmware was <3.5 before.
It indicates ”Tube statistic data invalid” as the tube load table changed its format.
Release 3.8 has a detailed table now.
All tube counters of the predecessor release are empty after flash load of release 3.8 if the original firmware was <3.5 before.
Details and a table of the new counter table can be found in chapter 3. ”Exposure counter” at the end of this manual.

2.2.1 Settings

No programming screen has to be adapted to the new level 8 of release 3 after the flash load, but some changes of settings have to be carried out:
Tomography auxiliary settings have to be modified for CAN controlled systems such as
Bucky TH, TH2:
RGDV 2 Data Set A

(see pages 2Z−2.2 + 2Z−2.5 + 2Z−2.8 + 2Z-2.9)
at the end of this document

Exposure series / Tomo movement: **No**

RGDV 2 Data Set B

(see pages 2Z−2.2 + 2Z−2.5 + 2Z−2.8 + 2Z-2.9)
at the end of this document

Underexposure display (non automatic techniques): **Yes**

2.2.1.1 Names in the screen

AGenT / Program / RGDV set A + B / RGDV 1 ... 8 / Data Set A
of the programmed ”Mounted radiographic controller” changed from
Bucky Controller 1 into Bucky Ctrl. 1/Dig.Diag.

2.2.2 APR data

- If APR data have to be adapted to the different maximum dose corrections, re−load the modified APR data file to the generator now.

2.2.3 Error log

The error log index can be erased if there are no entries which require service work:
AGenT / Fault Find / Error Log

- Click on “Clear” with the left mouse button.

3 EXPOSURE COUNTER

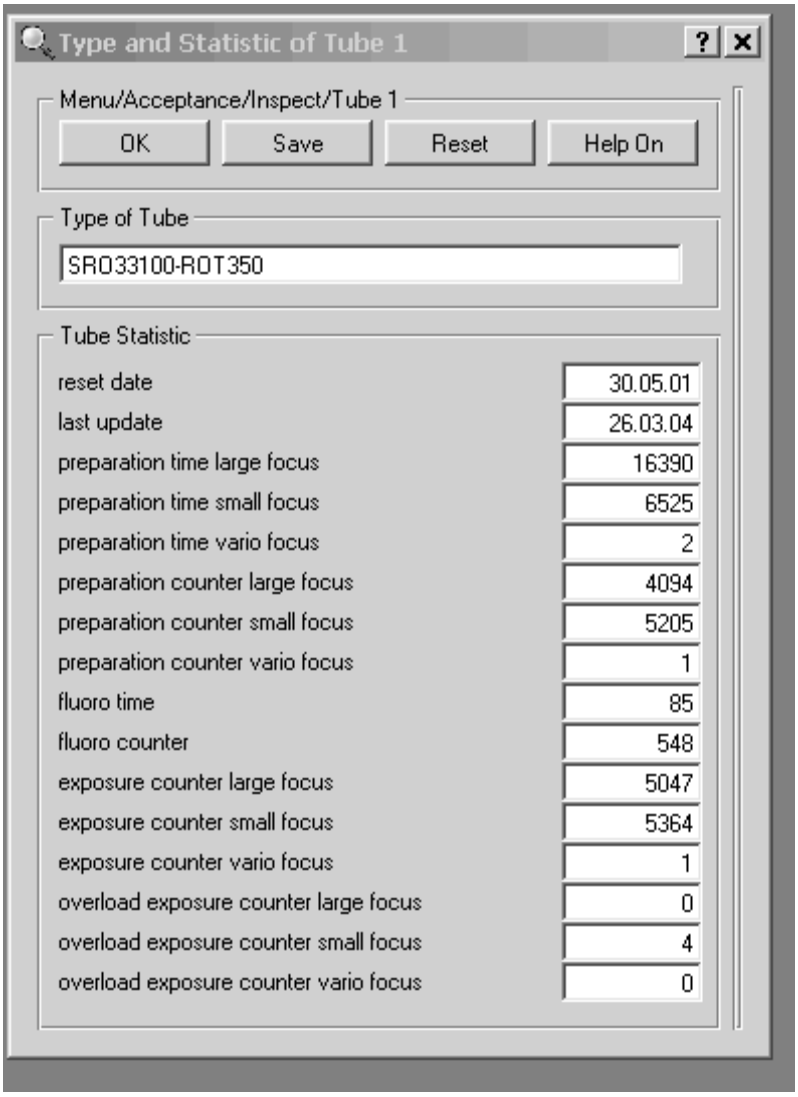
- Before handing over the generator to the customer, read the exposure counter.
  Use menu:
  Acceptance / Inspect / Tube 1 ... 3 / Type and statistic of Tube 1 ... 3
  Record the figure in the table below.

Tip

Tube load statistics variables written on a grey background and marked by a “*” are visible but do not affect the functions of this generator RAD type.
(They are made for generators R/F version).

Tube load statistic variable	Unit	Tube1	Tube 2	Tube 3
Reset date	dd.mm.yy			
Last update	dd.mm.yy			
Preparation time large focus	s			
Preparation time small focus	S			
Preparation time vario focus	S			
Preparation counter large focus	1			
Preparation counter small focus	1			
Preparation counter vario focus	1			
* Fluoro time	min			
* Fluoro counter	1			
Exposure counter large focus	1			
Exposure counter small focus	1			
Exposure counter vario focus	1			
Overload exposures counter large focus	1			
Overload exposures counter small focus	1			
Overload exposures counter vario focus	1			

- The tables should be reset whenever the tubes are being replaced.
  Use menu:
  Acceptance / Inspect / Tube 1 ... 3 / Type and statistic of Tube 1 ... 3
- Click on “Reset” with the left mouse button.
- Record the figure in the table above.



Explanation:

Reset date / Last update:
Reset of date and date of last update of the tube statistics.

Preparation time:
The sum of all preparation times per focus.

Preparation counter:
Count of the occurrences of transition STANDBY or FLUORO to PREPARATION per focus.

*** Fluoro time:**
The sum of all fluoro times.

*** Fluoro counter:**
Count of the fluoro commands.

Exposure counter:
Count of the exposures per focus (including the overload exposures).

Overload exposures counter:
Count of the exposures at overload conditions of the tube.

4 FINISHING WORK

- Close the cabinet.

INSTALLED BASE REGISTRATION – FSE NOTE:

This FCO has impact on the installed base registration so make sure you update your local installed base registration.

PARTS DISPOSAL:

N/A

DOCUMENTATION:

- Log this action in the section "History Record" of the System Reference Manual.
- File this FCO in the section "Service Information" of the System Reference Manual.
- Fill out the attached Action Notification Report and send it to your SSD Customer Support Manager.

ACTION NOTIFICATION REPORT:

- If required, fill out the attached ANR (Action Notification Report) and send it to your local GS&S Key Market / Country Customer Services or FCO manager.

FCO ACTION NOTIFICATION REPORT

For Key Market use only; do not return to BU/BL.

TITLE: ***Optimus RAD release upgrade to 3.8***	
CLASSIFICATION: ***Mandatory Action***	FCO REF. NO.: ***FCO70400042***
APPLIES TO: 70410/11/12/14/15, 704030/35, 704020/21/22, 704031/32, 704060/62, 704016/17/18 Main block: PB000135, Sub block: PB010005, PB010032, PB010033	

HOSPITAL / ADDRESS:	
LOCATION / FW SITE NO.:	SALES ORDER NO. / OA NO.:

PRODUCT NUMBER: | | | | | | | | | | | | |

UNIT SERIAL NUMBER: |

ACTION ON THIS UNIT WAS: (select one)

JOB NO. / SERVICE INCIDENT NO.:

☐ Completed per instruction on _____ DATE

☐ Completed by the factory prior to delivery

☐ Not completed as this unit is not affected per instruction because: (state reason)

_____

☐ Not completed because: . . . . . .
Required parts & instructions are received by the customer

☐ Not completed because customer refuses to install FCO: (state reason)

_____

CUSTOMER ACKNOWLEDGEMENT (Required for **MANDATORY ACTIONS** only).
The **REASON and PURPOSE** of this modification has been explained to me.

_____ CUSTOMER NAME (PLEASE PRINT)

_____ TITLE

_____ CUSTOMER SIGNATURE

_____ DATE

BRANCH REGION / DEALER: _____

SERVICE UNIT / SERVICE AREA NO.: _____

_____ SIGNATURE CUSTOMER SERVICES ENGINEER

_____ DATE

_____ SIGNATURE CUSTOMER SERVICES MANAGER

MAIL TO: SSD Customer Services manager

4512 983 05611_2Z_2_2

RGDV programming: example 2

- Bucky Diagnost TH with Bucky-Controller ***Name :*** ***- D76 : Exposure Scopo / BV-DSI***	Bucky	Tomo	Bucky wall stand	Free cassette	D 76 Scopo	D 76 BV – DSI		
Data Set A : Desk :	RGDV1	RGDV2	RGDV3	RGDV4	RGDV5	RGDV6	RGDV7	RGDV8
- Room :	1	1	1	1	1	1		
- Tube :	1	1	1	1	2	2		
- Release circuit number :	do not care	do not care	do not care	do not care	1	2		
- Enable handswitch at generator desk :	yes	yes	yes	yes	no	no		
- Syncmaster present :	yes	yes	yes	yes	yes	yes		
- Exposure switch type :	double step	double step	double step	double step	double step	double step		
- Bucky format density correction :	0	0	0	0	0	0		
- Cone density correction :	0	0	0	0	0	0		
- Dose measurement input :	EZ X21	none / [EZ X21]	EZ X31	none	EZ X22	EZ X41		
- Dose measurement sensor :	Bucky amplimat	Bucky amplimat	Bucky amplimat	(Bucky amplimat)	Scopo amplimat	photo sensor / amplimat input		
- Exposure series/Tomo movement :	no	no	no	no	yes	yes		
- Release delay :	enable	enable	enable	enable	enable	enable		
- Mounted radiographical controller :	Bucky contr. 1 / DigitalDiagnost	Bucky contr. 1 / DigitalDiagnost	Bucky contr. 1 / DigitalDiagnost	Bucky contr. 1 / DigitalDiagnost	none	none		
- Release circuit adaptation unit :	none	none	none	none	1WB	1WB		
- Mounted tomo extension :	none	none	none	none	none	none		
- Medium II format kV correction (dose equiv. steps) :	0	0	0	0	0	0 1)		
- Medium II format density correction (6% steps) :	0	0	0	0	0	0 1)		
- Medium II format mAs correction (6% steps) :	0	0	0	0	0	0 1)		
- Small II format kV correction (dose equiv. steps) :	0	0	0	0	0	0 1)		
- Small II format density correction (6% steps) :	0	0	0	0	0	0 1)		
- Small II format mAs correction (6% steps) :	0	0	0	0	0	0 1)		
Data Set B :								
- Used for tomo :	no	yes	no	no	no	no		
- Used for fluoroscopy :	no	no	no	no	yes	yes		
- CT add on :	no	no	no	no	no	no		
- Disable time override :	no	no	no	no	no	no		
- Tube power factor :	100 %	100 %	100 %	100 %	100 %	100 %		
- kV steps :	Dose equiv. 1)	Dose equiv. 1)	Dose equiv. 1)	Dose equiv. 1)	Dose equiv. 1)	Dose equiv. 1)		
- mAs steps :	25 % 1)	25 % 1)	25 % 1)	25 % 1)	25 % 1)	25 % 1)		
- mA steps :	25 % 1)	25 % 1)	25 % 1)	25 % 1)	25 % 1)	25 % 1)		
- time steps :	25 % 1)	25 % 1)	25 % 1)	25 % 1)	25 % 1)	25 % 1)		
- Density steps :	12 % 1)	12 % 1)	12 % 1)	12 %	12 % 1)	12 %		
- Density correction (6% steps) :	0	0	0	0	0	0		
- Underexposure display :	yes	yes	yes	yes	yes	yes		
- Tube overload protection :	on	on	on	on	on	on		

Bucky / Scopo 1WB / Decade Bucky 1 (WBX11) :		~~**Bucky / Tomo 1WA : Decade Bucky 1/2**~~	~~**WAX11**~~	~~**WAX12**~~	~~**Bucky / Tomo 1WA \ Tomo time [s] :**~~			
Bucky RGDV :	RGDV1 [ ] RGDV2 [ ] RGDV3 [ ] RGDV4 [ ] RGDV5 [**x**] RGDV6 [**x**] RGDV7 [ ] RGDV8 [ ]	Tomo mode switch	----	----	Tomo time 1 :	----	Tomo time 5:	----
		Bucky RGDV - switch related	----	----	Tomo time 2 :	----	Tomo time 6 :	----
		Bucky RGDV	----	----	Tomo time 3 :	----	Tomo time 7 :	----
		Bucky RGDV	----	----	Tomo time 4 :	----	Tomo time 8 :	----
		Tomo RGDV – switch related	----	----	Time setting for input at WA X21:1 8			
For WBX11 : 9 - -10 (ready) und 1- -2 (format size correction contact)		*Tomo mode switch : X11:3 SL_XG_TO / Bucky RGDV : X11:1 Format + :10 Bucky ready / Tomo RGDV : X11:1 Format + :5 Tomo ready switch related X11:3 --> Bucky - Tomo remote switchover RGDVs*						

1) = has to be adjustet on site

[ ] = TDC

BuckyDIAGNOST with Bucky-Controller TH / TH2 / DigitalDiagnost	***Name :***	Bucky	Tomo	Bucky wall stand	Free cassette				
Data Set A :	Desk :	RGDV1	RGDV2	RGDV3	RGDV4	RGDV5	RGDV6	RGDV7	RGDV8
- Room :		1	1	1	1				
- Tube :		1	1	1	1				
- Release circuit number :		do not care	do not care	do not care	do not care				
- Enable handswitch at generator desk :		yes	yes	yes	yes				
- Syncmaster present :		yes	yes	yes	yes				
- Exposure switch type :		double step	double step	double step	double step				
- Bucky format density correction :		0	0	0	0				
- Cone density correction :		0	0	0	0				
- Dose measurement input :		EZ X21	none / [EZ X21]	EZ X31	none				
- Dose measurement sensor :		Bucky amplimat	Bucky amplimat	Bucky amplimat	(Bucky amplimat)				
- Exposure series / Tomo movement :		no	no	no	no				
- Release delay :		enable	enable	enable	enable				
- Mounted radiographical controller :		Bucky contr. 1 / DigitalDiagnost	Bucky contr. 1 / DigitalDiagnost	Bucky contr. 1 / DigitalDiagnost	Bucky contr. 1 / DigitalDiagnost				
- Release circuit adaptation unit :		none	none	none	none				
- Mounted tomo extension :		none	none	none	none				
- Medium II format kV correction (dose equiv. steps) :		0	0	0	0				
- Medium II format density correction (6% steps) :		0	0	0	0				
- Medium II format mAs correction (6% steps) :		0	0	0	0				
- Small II format kV correction (dose equiv. steps) :		0	0	0	0				
- Small II format density correction (6% steps) :		0	0	0	0				
- Small II format mAs correction (6% steps) :		0	0	0	0				
Data Set B :									
- Used for tomo :		no	yes	no	no				
- Used for fluoroscopy :		no	no	no	no				
- CT add on :		no	no	no	no				
- Disable time override :		no	no	no	no				
- Tube power factor :		100 %	100 %	100 %	100 %				
- kV steps :		Dose equiv. 1)	Dose equiv. 1)	Dose equiv. 1)	Dose equiv. 1)				
- mAs steps :		25 % 1)	25 % 1)	25 % 1)	25 % 1)				
- mA steps :		25 % 1)	25 % 1)	25 % 1)	25 % 1)				
- time steps :		25 % 1)	25 % 1)	25 % 1)	25 % 1)				
- Density steps :		12 % 1)	12 % 1)	12 % 1)	12 %				
- Density correction (6% steps) :		0	0	0	0				
- Underexposure display :		yes	yes	yes	yes				
- Tube overload protection :		on	on	on	on				

~~Bucky / Scopo 1WB / Decade Bucky 1 (WBX11) :~~		~~Bucky / Tomo 1WA : Decade Bucky 1/2~~	~~WAX11~~	~~WAX12~~	~~Bucky / Tomo time~~			
Bucky RGDV :	RGDV1 [ ] RGDV2 [ ] RGDV3 [ ] RGDV4 [ ] RGDV5 [ ] RGDV6 [ ] RGDV7 [ ] RGDV8 [ ]	Tomo mode switch	----	----	Tomo time 1 :	----	Tomo time 5:	----
		Bucky RGDV - switch related	----	----	Tomo time 2 :	----	Tomo time 6 :	----
		Bucky RGDV	----	----	Tomo time 3 :	----	Tomo time 7 :	----
		Bucky RGDV	----	----	Tomo time 4 :	----	Tomo time 8 :	----
		Tomo RGDV - switch related	----	----	Time setting for input at WA X21:1 8			
For WBX11 : 9 - -10 (ready) und 1- -2 (format size correction contact)		*Tomo mode switch : X11:3 SL_XG_TO / Bucky RGDV : X11:1 Format + :10 Bucky ready / Tomo RGDV : X11:1 Format + :5 Tomo ready switch related X11:3 --> Bucky - Tomo remote switchover RGDVs*						

1) = has to be adjustet on site

[ ] = TDC

RGDV programming: example 5

BuckyDIAGNOST TH any version with Bucky-Controller Generotor equipped with / without decade adapt. unit WA Aux. for MCS (only) = RGDV4 combined with free cassette	***Name :***	Bucky	Tomo	Bucky wall stand	Free cassette	MCS			
Data Set A :	Desk :	RGDV1	RGDV2	RGDV3	RGDV4	RGDV4	RGDV6	RGDV7	RGDV8
- Room :		1	1	1	1	1			
- Tube :		1	1	1	1	1			
- Release circuit number :		1	1	1	1	1			
- Enable handswitch at generator desk :		yes	yes	yes	yes	yes			
- Syncmaster present :		yes	yes	yes	yes	yes			
- Exposure switch type :		double step	double step	double step	double step	double step			
- Bucky format density correction :		0	0	0	0	0			
- Cone density correction :		0	0	0	0	0			
- Dose measurement input :		EZ X21	none / [EZ X21]	EZ X31	none	EZ X22			
- Dose measurement sensor :		Bucky amplimat	Bucky amplimat	Bucky amplimat	(Bucky amplimat)	Bucky amplimat			
- Exposure series / Tomo movement :		no	no	no	no	no			
- Release delay :		enable	enable	enable	enable	enable			
- Mounted radiographical controller :		Bucky contr. 1 / DigitalDiagnost	Bucky contr. 1 / DigitalDiagnost	Bucky contr. 1 / DigitalDiagnost	Bucky contr. 1 / DigitalDiagnost	Bucky contr. 1 / DigitalDiagnost			
- Release circuit adaptation unit :		none	none	none	none	none			
- Mounted tomo extension :		none	none	none	none	none			
- Medium II format kV correction (dose equiv. steps) :		0	0	0	0	0			
- Medium II format density correction (6% steps) :		0	0	0	0	0			
- Medium II format mAs correction (6% steps) :		0	0	0	0	0			
- Small II format kV correction (dose equiv. steps) :		0	0	0	0	0			
- Small II format density correction (6% steps) :		0	0	0	0	0			
- Small II format mAs correction (6% steps) :		0	0	0	0	0			
Data Set B :									
- Used for tomo :		no	yes	no	no	no			
- Used for fluoroscopy :		no	no	no	no	no			
- CT add on :		no	no	no	no	no			
- Disable time override :		no	no	no	no	no			
- Tube power factor :		100 %	100 %	100 %	100 %	100 %			
- kV steps :		Dose equiv. 1)	Dose equiv. 1)	Dose equiv. 1)	Dose equiv. 1)	Dose equiv. 1)			
- mAs steps :		25 % 1)	25 % 1)	25 % 1)	25 % 1)	25 % 1)			
- mA steps :		25 % 1)	25 % 1)	25 % 1)	25 % 1)	25 % 1)			
- time steps :		25 % 1)	25 % 1)	25 % 1)	25 % 1)	25 % 1)			
- Density steps :		12 % 1)	12 % 1)	12 % 1)	12 %	12 % 1)			
- Density correction (6% steps) :		0	0	0	0	0			
- Underexposure display :		yes	yes	yes	yes	yes			
- Tube overload protection :		on	on	on	on	on			

~~Bucky / Scopo 1WB / Decade Bucky 1 (WBX11) :~~		~~Bucky / Tomo 1WA : Decade Bucky 1/2~~	~~WAX11~~	~~WAX12~~	~~Bucky / Tomo time~~			
Bucky RGDV :	RGDV1 [ ] RGDV2 [ ] RGDV3 [ ] RGDV4 [ ] RGDV5 [ ] RGDV6 [ ] RGDV7 [ ] RGDV8 [ ]	Tomo mode switch	----	----	Tomo time 1 :	----	Tomo time 5:	----
		Bucky RGDV - switch related	----	----	Tomo time 2 :	----	Tomo time 6 :	----
		Bucky RGDV	----	----	Tomo time 3 :	----	Tomo time 7 :	----
		Bucky RGDV	----	----	Tomo time 4 :	----	Tomo time 8 :	----
		Tomo RGDV – switch related	----	----	Time setting for input at WA X21:1 8			
For WBX11 : 9 - -10 (ready) und 1- -2 (format size correction contact)		*Tomo mode switch : X11:3 SL_XG_TO / Bucky RGDV : X11:1 Format + :10 Bucky ready / Tomo RGDV : X11:1 Format + :5 Tomo ready switch related X11:3 --> Bucky - Tomo remote switchover RGDVs*						

1) = has to be adjustet on site

[ ] = TDC

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RGDV programming: example 8

2Z-2.8

BuckyDIAGNOST TH any version ***Name :*** ***Generotor equipped with / without decade adapt. unit WA*** ***Aux. for MCS (only) = any of RGDV5 ... 8***	Bucky	Tomo	Bucky wall stand	Free cassette				MCS
Data Set A : Desk :	RGDV1	RGDV2	RGDV3	RGDV4	RGDV5	RGDV6	RGDV7	RGDV8
- Room :	1	1	1	1				1
- Tube :	1	1	1	1				1
- Release circuit number :	1	1	1	1				1
- Enable handswitch at generator desk :	yes	yes	yes	yes				yes
- Syncmaster present :	yes	yes	yes	yes				no
- Exposure switch type :	double step	double step	double step	double step				double step
- Bucky format density correction :	0	0	0	0				0
- Cone density correction :	0	0	0	0				0
- Dose measurement input :	EZ X21	none / [EZ X21]	EZ X31	none				EZ X22
- Dose measurement sensor :	Bucky amplimat	Bucky amplimat	Bucky amplimat	(Bucky amplimat)				Bucky amplimat
- Exposure series / Tomo movement :	no	no	no	no				no
- Release delay :	enable	enable	enable	enable				enable
- Mounted radiographical controller :	Bucky contr. 1 / DigitalDiagnost	Bucky contr. 1 / DigitalDiagnost	Bucky contr. 1 / DigitalDiagnost	Bucky contr. 1 / DigitalDiagnost				none
- Release circuit adaptation unit :	none	none	none	none				none
- Mounted tomo extension :	none	none	none	none				none
- Medium II format kV correction (dose equiv. steps) :	0	0	0	0				0
- Medium II format density correction (6% steps) :	0	0	0	0				0
- Medium II format mAs correction (6% steps) :	0	0	0	0				0
- Small II format kV correction (dose equiv. steps) :	0	0	0	0				0
- Small II format density correction (6% steps) :	0	0	0	0				0
- Small II format mAs correction (6% steps) :	0	0	0	0				0
Data Set B :								
- Used for tomo :	no	yes	no	no				no
- Used for fluoroscopy :	no	no	no	no				no
- CT add on :	no	no	no	no				no
- Disable time override :	no	no	no	no				no
- Tube power factor :	100 %	100 %	100 %	100 %				100 %
- kV steps :	Dose equiv. 1)	Dose equiv. 1)	Dose equiv. 1)	Dose equiv. 1)				Dose equiv. 1)
- mAs steps :	25 % 1)	25 % 1)	25 % 1)	25 % 1)				25 % 1)
- mA steps :	25 % 1)	25 % 1)	25 % 1)	25 % 1)				25 % 1)
- time steps :	25 % 1)	25 % 1)	25 % 1)	25 % 1)				25 % 1)
- Density steps :	12 % 1)	12 % 1)	12 % 1)	12 %				12 % 1)
- Density correction (6% steps) :	0	0	0	0				0
- Underexposure display :	yes	yes	yes	yes				yes
- Tube overload protection :	on	on	on	on				on

~~Bucky / Scopo 1WB / Decade Bucky 1 (WBX11) :~~		~~Bucky / Tomo 1WA : Decade Bucky 1/2~~	~~WAX11~~	~~WAX12~~	~~Bucky / Tomo time~~			
Bucky RGDV :	RGDV1 [ ] RGDV2 [ ] RGDV3 [ ] RGDV4 [ ] RGDV5 [ ] RGDV6 [ ] RGDV7 [ ] RGDV8 [ ]	Tomo mode switch	----	----	Tomo time 1 :	----	Tomo time 5:	----
		Bucky RGDV - switch related	----	----	Tomo time 2 :	----	Tomo time 6 :	----
		Bucky RGDV	----	----	Tomo time 3 :	----	Tomo time 7 :	----
		Bucky RGDV	----	----	Tomo time 4 :	----	Tomo time 8 :	----
		Tomo RGDV – switch related	----	----	Time setting for input at WA X21:1 8			
For WBX11 : 9 - -10 (ready) und 1- -2 (format size correction contact)		*Tomo mode switch : X11:3 SL_XG_TO / Bucky RGDV : X11:1 Format + :10 Bucky ready / Tomo RGDV : X11:1 Format + :5 Tomo ready switch related X11:3 --> Bucky - Tomo remote switchover RGDVs*						

1) = has to be adjustet on site

[ ] = TDC

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RGDV programming: example 9